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average dwell-time of the PET-material or, respectively, the duration of pre-processing, amounts to 35 to 65 min, preferably 40 to 60 min.

5. (amended) Process according to claim 1, characterized in that for PET -foils and/or PET-fibers and/or PET-flakes, the pre-processing step, that preferably is performed under environmental pressure, is performed at a temperature range of 170 to 200°C, preferably 180 to 200°C, and at simultaneous mechanic treatment or, respectively, power applying that causes heating, by at least one mixing and/or comminuting element, wherein the average dwell-time of the PET-material or, respectively, the duration of pre-processing, amounts to 10 to 30 min, preferably 10 to 15 min.

6. (amended) Process according to claim 1, characterized in that the PET-material is subjected to the pre-processing step in a continuous flow.

7. (amended) Process according to claim 1, characterized in that the pre-processed PET-material is subjected to an intermediate storage between the pre-processing step and the main-processing step, the duration of this storage corresponds to 80 to 120 % of the duration of pre-processing step, and that the pre-processed PET-material is kept during the intermediate storage and/or during conveying to main-processing at a temperature that is as constant as possible, in particular 130 to 190°C, preferably 150 to 170°C.

8. (amended) Process according to claim 1, characterized in that during the main-processing step that is performed under vacuum, in particular under a pressure of less than 20 mbar, preferably less than 10 mbar, the pre-processed PET-pieces and/or the milled bottle material is mechanically treated at a temperature of 170 to 210°C, preferably 180 to 200°C, or is subjected to a power introduction that causes heating by at least one, preferably rotating, mixing and/or comminuting element, wherein the average dwell-time of the PET-material or the duration of the main-processing step, respectively, amounts to 40 to 100 min, preferably 50 to 90 min.

10. (amended) Process according to claim 1, characterized in that at the main-processing step that is performed under vacuum, the pre-processed PET-foils and/or PET-fibers are processed at a temperature of 160 to 210°C, preferably 170 to 205°C, or, respectively, are subjected to a mechanic power introduction that causes heating by at least one

mixing and/or comminuting element, wherein the average dwell-time of the PET-material or the duration of the main-processing step, respectively, amounts to 5 to 25 min, in particular to 10 to 15 min.

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12. (amended) Process according to claim 5, characterized in that at least one rotating mixing and/or comminuting element is used.

13. (amended) Process according to claim 1, characterized in that the PET-material is comminuted before pre-processing to sizes of 15 to 25 mm.

14. (amended) Process according to claim 1, characterized in that the PET-material to be processed is pre-comminuted and/or washed and/or pre-dried before the pre-processing step.

15. (amended) Process according to claim 1, characterized in that the PET-material is supplied from a main-processing apparatus (4) to the extruder (8) under vacuum conditions or, respectively, that the vacuum existing within the main-processing apparatus (4) acts into the inlet section of the extruder (8).

16. (amended) Apparatus for recycling of PET-material, in which the PET-material to be processed is dried, crystallized and plasticized or, respectively, molten, and the melt, if desired after filtering, is processed to PET-granulate, for performing the process according to claim 1, characterized by two processing steps, in the first of which there is provided for pre-processing of the supplied PET-material a pre-processing device (3) having mechanical processing elements (5) for drying and simultaneously crystallizing the PET-material at elevated temperature and that this first step is followed by a second processing step comprising an evacuable main-processing device (4) having mechanical processing elements (5') for further drying, crystallizing and temperature increase of the PET-material supplied by the pre-processing device (3).

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18. (amended) Apparatus according to claim 16, characterized in that as well within the pre-processing device (3) as within the main-processing device (4) there is provided at least one rotating mixing and/or comminuting element (5, 5') which mechanically treats and heats the PET-material.

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21. (amended) Apparatus according to claim 16, characterized in that an intermediate storage means (6) is inserted between the pre-processing device (3) and the main-processing device (4), the volume of this storage means (6) corresponds to 100 to 200 % of the volume of the pre-processing device (3).

22. (amended) Apparatus according to claim 6, characterized in that between the pre-processing device (3) and the intermediate storage means (6) and between the intermediate storage means (6) and the main-processing device (4) a thermically isolated and/or heated conveyor unit (7) each is provided, preferably a conveyor screw or an extruder.

23. (amended) Apparatus according to claim 16, characterized in that the volume of the main-processing device (4) amounts to 80 to 200% of the volume of the pre-processing device (3), in particular to 100 to 180 %.

24. (amended) Apparatus according to claim 16, characterized in that an extruder (8) is connected to the main-processing device (4), in which extruder the PET-material taken from the main-processing device (4) is heated to a temperature of 260 to 275°C and is plasticized or molten, respectively.

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26. (amended) Apparatus according to claim 24, characterized in that the extruder (8) comprises at least one de-gassing zone (9) to which a vacuum pump (10) is connected by which within the de-gassing zone (9) a pressure of less than 40 mbar, in particular less than 10 mbar, can be adjusted.

27. (amended) Apparatus according to claim 16, characterized in that a filtration device (11) for PET-melt is connected to the extruder (8) and that, if desired, a device (12) for producing finished products or semi-finished products, for example PET-granulate, is connected to this filtration device (11).

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29. (amended) Apparatus according to claim 16, characterized in that the pressure in the main-processing device (4) is adjustable to less than 150 mbar, preferably less than 20 mbar.

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30. (amended) Apparatus according to claim 16, characterized in that an additional heating for the pre-processing device (3) and/or for the main processing device (4) is provided.